UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/822,000	04/12/2004	Genta Sato	0879-0439PUS1	1580

2292 7590 07/09/2009

BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER	
QUIETT, CARRAMAH J	

ART UNIT	PAPER NUMBER
2622	

NOTIFICATION DATE	DELIVERY MODE
07/09/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/822,000	SATO, GENTA	
	Examiner	Art Unit	
	Carramah J. Quiett	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 March 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5,8-15,18 and 20-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5,8-15,18 and 20-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-35 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claims 1-35** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "counting a number of the points within each of the groups and obtaining a plurality of specific groups from among *the groups* based on said number of the points so that the number of points in each of said specific groups is greater than or equal to a predetermined number" in line 11-13. Respectfully, which groups – the new groups or the specific groups? There is insufficient antecedent basis for this limitation in the claim.

Claim 11 recites the limitation "obtaining a plurality of specific groups from among *the groups* based on said number of the points so that the number of points in each of said specific groups is greater than or equal to a predetermined number". Respectfully, which groups – the new groups or the specific groups? There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. **Claims 1-3, 5-6, 8-9, 11-12, 14-20, 22, 26-28, and 32-35** are rejected under 35 U.S.C. 103(a) as being unpatentable over Taskeshita (US 7,084,907) in view of Ishii et al. (US 7,009,640) and Kehtarnavaz et al. (US 7,184,080).

For **claim 1**, Taskeshita teaches an automatic white balance adjusting method, comprising:

obtaining RGB signals from a color image pick up element (color sensor – col. 6, lines 16-50);

acquiring color information (160 areas of color signals obtained by dividing the image capturing surface into 160 portions) for each of a plurality of division areas in which one screen (surface of a single 2-dimensional image capturing element) of the color image pick up element is divided into a plurality of areas, based on said RGB signals within each division area (col. 6, lines 34-50);

points (160 sets of chromaticity data) which represent the color information for said plurality of division areas in the color space which is represented by R/G and B/G (col. 6, lines 51-65);

obtaining a plurality of specific groups (an area with the largest number of sets of chromaticity data) from among the groups based on said number of the points so that the number of points in each of said specific groups is greater than or equal to a predetermined number (col. 9, lines 51-67; col. 10, lines 1-27);

obtaining R/G gains and B/G gains for each of said plurality of specific groups, wherein the R/G gain and B/G gain for each specific group make color information representing said each groups *an achromatic color*; and

calculating white balance correction values using the plurality of R/G gains and B/G gains for said plurality of specific groups (col. 9, lines 51-67; col. 10, lines 1-67); and

adjusting the white balance of said RGB signals based on said white balance correction values (col. 9, lines 51-67; col. 10, lines 1-67).

However, Takeshita does not expressly teach determining distances between points; creating new groups for said (R/G, B/G) points using said distances between said points; counting a number of the points within each of the groups, and obtaining R/G gains and B/G gains for each of said plurality of specific groups, wherein the R/G gain and B/G gain for each specific group make color information representing said each specific groups to be *the neutral gray (N gray)* and calculating white balance correction values based on the R/G gains and the B/G gains (*in regards to N gray*).

In a similar field of endeavor, Ishii teaches determining distances between points; creating new groups for said (R/G, B/G) points using said distances between said points; and counting a number of the points within each of the groups. Please read Ishii, col. 21, lines 3-40. In light of the teaching of Ishii, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Takeshita with the white balance adjusting method as recited in claim 1 in order to improve the reproduction of colors in high precision without having characteristic information of the photographed subject in advance (Ishii, col. 3, lines 5-27).

Also, in a similar field of endeavor, Kehtarnavaz teaches obtaining R/G gains and B/G gains for each of said plurality of specific groups, wherein the R/G gain and B/G gain for each specific group make color information representing said each specific groups to be *the neutral gray (N gray)* and calculating white balance correction values based on the R/G gains and the B/G gains (*in regards to N gray*). Please read Kehtarnavaz, col. 2, lines 33-54 and col. 6, line 61 – col. 7, line 45. In light of the teaching of Kehtarnavaz, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the counting method of Takeshita with the N gray as recited in claim 1 in order to improve/expand the white balance capabilities and functioning as well as the exposure in a digital camera (Kehtarnavaz, col. 3, line 63-5).

For **claim 2**, Takeshita, as modified by Ishii and Kehtarnavaz, teaches the automatic white balance adjusting method according to claim 1, wherein said step of .acquiring color information of said division area comprises integrating the RGB signals within said division area for each color to obtain an integrated value for each color, and acquiring R/G ratios and B/G ratios of said integrated value for each color and having the ratios R/G and B/G as the color information of said division area. Please read Takeshita, col. 10, lines 1-67 and Kehtarnavaz, col. col. 2, lines 33-54; col. 3, lines 39-62 and col. 6, line 61 – col. 7, line 45.

For **claim 3**, Takeshita, as modified by Ishii and Kehtarnavaz, teaches the automatic white balance adjusting method according to claim 2, wherein said step of creating new groups comprises grouping the color information for said adjacent division areas in the same group when said acquired distance is less than or equal to a predetermined value (Takeshita col. 6, line 66 – col. 7, line 9; col. 10, lines 1-67).

For **claim 5**, Takeshita, as modified by Ishii and Kehtarnavaz, teaches the automatic white balance adjusting method according to claim 4, wherein said step of calculating the white balance correction values comprises a step of calculating said white balance correction values by weighting the R/G gains and the B/G gains for each of the plurality of specific groups that is weighted by the number of points within each of the specific groups, and adding the weighted gains and B/G gains for the plurality of specific groups. (Takeshita, col. 10, lines 1-27; Kehtarnavaz col. 6, line 66 – col. 7, line 9).

For **claim 8**, Takeshita, as modified by Ishii and Kehtarnavaz, teaches the automatic white balance adjusting method according to claim 1 wherein said distances are calculated according to the following formula:

$$D = \sqrt{\left\{\left(R_1/G_1 - R_2/G_2\right)^2 + \left(B_1/G_1 - B_2/G_2\right)^2\right\}}$$

wherein R_1/G_1 and B_1/G_1, represent a first piece of color information representing a first point in the color space;

wherein R_2/G_2 and B_2/G_2 represent a second piece of color information representing a second point in the color space; and

wherein D is the distance between the points which represent color information between said adjacent division areas in the color space represented by R/G and B/G. Please read Ishii, col. 21, lines 3-40.

For **claim 9**, Takeshita, as modified by Ishii and Kehtarnavaz, teaches the automatic white balance adjusting method according to claim 1, wherein said distances are calculated according to the following formula:

$$D^2 = \left(R_1/G_1 - R_2/G_2\right)^2 + \left(B_1/G_1 - B_2/G_2\right)^2$$

wherein R_1/G_1 and B_1/G_1, represent a first piece of color information representing a first point in the color space;

wherein R_2/G_2 and B_2/G_2 represent a second piece of color information representing a second point in the color space; and

wherein D is the distance between the points which represent color information between said adjacent division areas in the color space represented by R/G and B/G. Please read Ishii, col. 21, lines 3-40.

Claim 11-12 are apparatus claims corresponding to method claims 1-2, respectively. Therefore, claims 11-12 are analyzed and rejected as previously discussed with respect to claims 1-2, respectively.

For **claim 13**, Takeshita, as modified by Ishii and Kehtarnavaz, discloses the apparatus of claim 11 wherein the grouping device that calculates distances between the points which represent color information between said division areas on a color space represented by R/G and B/G and groups the points which represent color information for said division areas in the same group when said acquired distance is less than or equal to a predetermined value. Please read Takeshita, col. 10, lines 1-27 and Ishii, ref. 824; col. 21, lines 3-40.

Claims 14-15 are apparatus claims corresponding to method claims 8-9, respectively. Therefore, claims 14-15 are analyzed and rejected as previously discussed with respect to claims 8-9, respectively.

For **claim 18**, Takeshita, as modified by Ishii and Kehtarnavaz, discloses the apparatus of claim 11, wherein said calculating device calculates said white balance correction values based on the points which represent color information contained in said specific group of points which

represent color information wherein target color information comprises the representative color information representing the points which represent color information within each group (Takeshita, col. 10, lines 1-27; Kehtarnavaz col. 6, line 66 – col. 7, line 9).

For **claim 20**, Takeshita, as modified by Ishii and Kehtarnavaz, discloses the apparatus of claim 11, wherein said calculating device calculates said white balance correction values by weighting the calculated white balance correction values for each group of said specific groups by the number of points which represent color information within each group, when there are a plurality of said specific groups and adding the weighted white balance correction values (Takeshita, col. 10, lines 1-27; Kehtarnavaz col. 6, line 66 – col. 7, line 9).

For **claim 22**, Takeshita, as modified by Ishii and Kehtarnavaz, teaches the automatic white balance adjusting method according to claim 1, wherein said acquiring step:

calculates white balance fine adjustment values (Takeshita, col. 10, lines 1-27); and

multiplies the RGB signals by the white balance fine adjustment values, to obtain adjusted RGB signals to be used in said determining step (Takeshita, col. 10, lines 1-27; col. 11, lines 51-65).

For **claim 26**, Takeshita, as modified by Ishii and Kehtarnavaz, teaches the automatic white balance adjusting method according to claim 1, further comprising:

discriminating light source species at the actual photographing based on the RGB signals (Takeshita, col. 7, lines 10-25); and

making white balance adjustment according to the discriminated light source species (Takeshita, col. 9, lines 51-67; col. 10, lines 1-27).

For **claim 27**, Takeshita, as modified by Ishii and Kehtarnavaz, teaches the automatic white balance adjusting method according to claim 26, wherein said discriminating light source species at the actual photographing, discriminating the light source species by obtaining the light source species having the color information to which the points which represent color information representing the group having the maximum number of the color information is closest among the color information of light source species (Takeshita, col. 9, lines 51-67; col. 10, lines 1-27; col. 10, line 49 – col. 11, line 59).

For **claim 34**, Takeshita, as modified by Ishii and Kehtarnavaz, teaches the automatic white balance adjusting method according to claim 1, wherein color information which represents said each specific group is the color information in the center of said each specific group in the color space or average color information of said each specific group (Takeshita, col. 10, lines 1-27; Kehtarnavaz col. 6, line 66 – col. 7, line 9).

Claims 28 and 32-34 are apparatus claims corresponding to method claims 22, 26-27, and 35, respectively. Therefore, claims 28 and 32-34 are analyzed and rejected as previously discussed with respect to claims 22, 26-27, and 35, respectively.

6. **Claims 10 and 21** are rejected under 35 U.S.C. 103(a) as being unpatentable over Taskeshita (US 7,084,907) in view of Ishii et al. (US 7,009,640) and Kehtarnavaz et al. (US 7,184,080) as applied to claims 5 and 20 above, and further in view of Hubina et al. (US 6,876,384).

For **claim 10**, Takeshita, as modified by Ishii and Kehtarnavaz, teaches the automatic white balance adjusting method according to claim 5. However, Takeshita, as modified by Ishii

and Kehtarnavaz, do not expressly teach wherein said white balance correction values are calculated according to the following formulas: $Gr = \sum Gri \times \left(Ni / \sum Ni\right)$, $Gb = \sum Gbi \times \left(Ni / \sum Ni\right)$ wherein *Gr* is an R/G gain and *Gb* is an B/G gain; wherein N is the number of the points color information within each specific group of said plurality of specific groups; and wherein *i* is the range of summation representing a number of the specific groups.

In a similar field of endeavor, Hubina teaches an automatic white balance adjusting method wherein said white balance correction values are calculated according to the following formulas: wherein said white balance correction values are calculated according to the following formulas: $Gr = \sum Gri \times \left(Ni / \sum Ni\right)$, $Gb = \sum Gbi \times \left(Ni / \sum Ni\right)$ wherein *Gr* is an R/G gain and *Gb* is an B/G gain; wherein N is the number of the points color information within each specific group of said plurality of specific groups; and wherein *i* is the range of summation representing a number of the specific groups. Please read col. 14, lines 21-67. In light of the teaching of Hubina, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Takeshita, as modified by Ishii and Kehtarnavaz, with the white balance adjusting method as recited in claim 10. This modification provides a more accurate representation of the colors in an imaged object (Hubina, col. 2, lines 5-12).

Claim 21 is an apparatus claim corresponding to method claim 10. Therefore, claim 21 is analyzed and rejected as previously discussed with respect to claim 10.

7. **Claims 23 and 29** are rejected under 35 U.S.C. 103(a) as being unpatentable over Taskeshita (US 7,084,907) in view of Ishii et al. (US 7,009,640) and Kehtarnavaz et al. (US 7,184,080) as applied to claims 1 and 11 above, and further in view of Higuchi (US 7,151,563).

For **claim 23**, Takeshita, as modified by Ishii and Kehtarnavaz, teaches the automatic white balance adjusting method according to claim 1, further comprising:

calculating white balance fine adjustment values (Takeshita, col. 10, lines 1-27; Kehtarnavaz col. 6, line 66 – col. 7, line 9);

However, Takeshita, as modified by Ishii and Kehtarnavaz, do not expressly teach discriminating whether the white balance adjusting mode is the manual white balance adjusting mode or the automatic white balance adjusting mode; and discriminating the white balance adjusting mode as the manual white balance adjusting mode.

In a similar field of endeavor, Higuchi teaches an automatic white balancing method comprising discriminating whether the white balance adjusting mode is the manual white balance adjusting mode or the automatic white balance adjusting mode; and discriminating the white balance adjusting mode as the manual white balance adjusting mode. Please read col. 5, line 64 – col. 6, line 13. In light of the teaching of Higuchi, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Takeshita, as modified by Ishii and Kehtarnavaz, with the white balance adjusting method as recited in claim 23 in order to provide white balance adjustment (manually or automatically) regardless of the imaging condition.

Claim 29 is a method claim corresponding to method claim 23. Therefore, claim 29 is analyzed and rejected as previously discussed with respect to claim 23.

8. **Claims 24 and 30** are rejected under 35 U.S.C. 103(a) as being unpatentable over Taskeshita (US 7,084,907) in view of Ishii et al. (US 7,009,640) and Kehtarnavaz et al. (US

7,184,080) as applied to claims 22 and 28 above, and further in view of Takemoto (US 7,081,918).

For **claim 24**, Takeshita, as modified by Ishii and Kehtarnavaz, teaches the automatic white balance adjusting method according to claim 22, further comprising:

obtaining RGB signals from a *gray* chart under an adjusted light source corresponding to a predetermined light source species (Kehtarnavaz col. 5, lines 24-32;col. 6, line 66 – col. 7, line 9);

making white balance adjustment by multiplying the RGB signals obtained by photographing the color chart by preset white balance correction values corresponding to the predetermined light source species (Takeshita, col. 10, lines 1-27);

calculating average integrated values for the RGB signals obtained by photographing the color chart over one full screen after the white balance adjustment (Takeshita, col. 10, lines 1-27; Kehtarnavaz, col. 2, lines 39-62; col. 6, line 66 – col. 7, line 9); and

calculating the white balance fine adjustment values, wherein the white balance fine adjustment values are ratios of the calculated average integrated values to target average integrated values corresponding to a predetermined light source species (Takeshita col. 9, lines 51-67; col. 10, lines 1-27).

However, Takeshita, as modified by Ishii and Kehtarnavaz, do not expressly teach a photographing a gray chart.

In a similar field of endeavor, Takemoto teaches obtaining RGB signals by photographing a gray chart under an adjusted light source corresponding to a predetermined light source species (col. 17, lines 28-41). In light of the teaching of Takemoto, it would have been

obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Takeshita, as modified by Ishii and Kehtarnavaz, by photographing a gray chart as recited in claim 24 in order to generate a model tone characteristic profile thereby creating a high-quality reproduce image (Takemoto, col. 4, lines 3-14).

Claim 30 is an apparatus claim corresponding to method claim 24. Therefore, claim 30 is analyzed and rejected as previously discussed with respect to claim 24.

9. **Claims 25 and 31** are rejected under 35 U.S.C. 103(a) as being unpatentable over Taskeshita (US 7,084,907) in view of Ishii et al. (US 7,009,640) and Kehtarnavaz et al. (US 7,184,080) and Higuchi (US 7,151,563) as applied to claims 23 and 29 above, and further in view of Takemoto (US 7,081,918).

Claim 25 is a method claim corresponding to method claim 24. Therefore, claim 25 is analyzed and rejected as previously discussed with respect to claim 24.

Claim 31 is an apparatus claim corresponding to method claim 24. Therefore, claim 31 is analyzed and rejected as previously discussed with respect to claim 24.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carramah J. Quiett whose telephone number is (571)272-7316. The examiner can normally be reached on 8:00-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David L. Ometz/
Supervisory Patent Examiner, Art Unit 2622

/C. J. Q./
Examiner, Art Unit 2622
July 4, 2009